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ABSTRACT

H. M. Cooper (1988) has developed a taxonomy that classified literature reviews based on six characteristics: (1) focus of attention; (2) goal of the synthesis; (3) perspective on the literature; (4) coverage of the literature; (5) organization of the perspective; and (6) intended audience. One hundred and three meta-analyses identified from the literature on educational achievement were coded according to Cooper's taxonomy. Research outcomes were the focus in a majority of the meta-analyses while research methods and theory building or assessment were the focus in less than 10 percent of the meta-analyses. Generalization was a goal of all the meta-analyses, while linguistic bridge building, which deals with theories, was a goal in 12 percent of the meta-analyses. Perspectives of these meta-analyses were fairly evenly divided between neutral and espousal of a position. Findings were arranged conceptually in all of the meta-analyses, and were also arranged methodologically in slightly fewer than half. Practitioners were the usual intended audience. Using the taxonomy of reviews to classify meta-analyses can help readers assess study quality and can provide a framework for those who are conducting and publishing meta-analyses. Appendix A lists the meta-analyses included in this exploration; Appendix B lists identified studies specifically excluded. (Contains 6 tables and 10 references.) (SLD)

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Cooper's Taxonomy of Literature Reviews

Applied to Meta-Analyses in Educational Achievement

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Cooper's Taxonomy of Literature Reviews

Applied to Meta-Analyses in Educational Achievement

The quantity of published research in most disciplines is quite overwhelming. In education, an average of 1,500 journal articles and 1,100 documents are added each month to the ERIC Database, totaling 18,000 journal articles and 13,000 documents annually (ERIC, 1993). It is impossible for anyone to read not to mention synthesize this vast amount of literature. Moreover, keeping abreast in a particular topic area or areas can be unmanageable since conflicting outcomes of individual studies may complicate reading and synthesizing reports. Over time, researchers have developed various methods to combine evidence from different studies, some of which include: the narrative review, vote counting methods, combined significance tests, and quantitative synthesis (Light & Pillemer, 1984). Meta-analysis is one of the most recent advances in quantitative synthesis of research.

Glass first coined the term meta-analysis in 1976 (Glass, 1976) and hundreds now exist in the educational, psychological, and medical literatures. This paper is one component of a larger project which identified and analyzed meta-analyses in education related to achievement. In this paper, Cooper's taxonomy of literature reviews (Cooper, 1988) was applied to the meta-analyses.

Perspective

Cooper has developed a taxonomy that classifies literature reviews based on six characteristics. These characteristics include: "focus of attention, goal of the synthesis, perspective on the literature, coverage of the literature, organization of the presentation, and intended audience" (Cooper and Hedges, 1994, p. 4). These six characteristics allow research syntheses to be distinguished from one another. A brief description of each characteristic as defined by Cooper (1988) will follow.

Focus

The material that is of primary concern to the author determines the focus of a review. Most reviews in education usually concentrate on one or more of the following areas: a) research outcomes, b) research methods, c) theories, and/or d) practices or applications.

Goals

The end objective for the reviewer establishes the goal of the review. The most common goal in literature review is the integration of previous literature. This can include: a) generalization, b) conflict resolution in which a new "conception" of an idea is offered as an explanation of contradictory ideas or statements, and c) linguistic bridge building that bridges the gap between theories to create a "common linguistic framework" (Cooper, 1988, p. 108). A second goal is criticism in which the reviewer demonstrates that conclusions about the literature are biased or incorrect. A third goal is identification of central issues.

Perspective

Perspective pertains to the tone of the discussion section. Reviewers either attempt to provide a neutral perspective that involves exposing many sides to an issue or espouse a position that may involve limiting the information presented.

Coverage

The process of identifying literature included in the review determines the nature of the coverage. The coverage can be a) exhaustive, b) exhaustive with selective criterion, c) representative of core material, and/or d) central or pivotal to the reviewer's goal.

Organization

Organization concerns the arrangement of the findings and conclusions of the review. These categories include: a) historically, b) conceptually, and/or c) methodologically.

Audience

The intended audience of the review can include: a) specialized scholars, b) general scholars, c) practitioners or policy makers, and/or d) the general public. Cooper suggests that the intended audience is identified through the author's style of writing.

Methods

The methods used in this project were similar to the stages of research synthesis suggested by Cooper and Hedges (1994) which encompassed problem formulation, data collection, data evaluation, analysis and interpretation. Data collection included the literature search process described below. Data evaluation consisted of coding the meta-analyses using a coding form and manual developed for this project. One hundred and three meta-analyses were coded according to Cooper's taxonomy defined below.

Operational Definitions for Coding

I. Focus

The purpose section of the meta-analysis was the source for the type of focus to determine the central interest of the reviewer. Occasionally the problem statement or discussion section also provided an indication of the author's central interest. Meta-analyses may contain multiple foci. The first two foci are self-explanatory.

1) Research outcomes.

2) Research methods.

3) Theories. Specific theory identified within the purpose or included in the discussion section.

4) Practices or applications. Specific applications of the research identified in the purpose.

II. Goals

The goals were identified from the purpose statement as well as the literature review section. The goals were the author's aspirations for the review. Meta-analyses may contain more than one goal.

1) Integration. A review was considered to be integrative if the author compared the results from several studies in the review of literature or background sections.

a) Generalization. General statements from multiple specific instances.

b) Conflict resolution. Identification of conflict among multiple primary studies.

c) Linguistic bridge building. Linking theories and concepts to practice.

2) Criticism. The literature review or purpose statement contained critical statements concerning past conclusions.

3) Identification of central issues. The literature review and/or problem statement identified specific issues. The three types listed below are self-explanatory.

a) Questions that have dominated past endeavors.

b) Questions that should dominate future endeavors.

c) Methodological problems that have prevented a topic from progression.

III. Perspective

Information concerning the perspective was found in the discussion section.

1) Neutral representation. Alternative explanations for the results were presented.

2) Espousal of a position. No alternative explanations for the results were offered.

IV. Coverage

Type of coverage was determined from the data sources described in the methods section. Meta-analyses may contain multiple types of coverage.

1) Exhaustive. Included entire literature or most of it with virtually no exclusion criteria. Contained a literature search of at least 2 databases.

2) Exhaustive with selective criterion. Contained a literature search of at least 2 databases. Contained exclusion criteria which eliminated portions of the literature.

3) Representative. Only used one journal or one source for the primary studies.

4) Central or pivotal. Contained primary studies from previous reviews or meta-analyses.

V. Organization

The order in which the results were presented determined the organization. Meta-analyses could be organized in more than one way.

1) Historically. Chronological order.

2) Conceptually. Results with similar concepts were grouped together.

3) Methodologically. Results were grouped according to methodological features.

VI. Audience

The audience was determined by the type of journal the meta-analysis was published in, the purpose, the implications, as well as the writing style of the author. Meta-analyses may have more than one audience.

1) Specialized scholars. Journal was of limited circulation. Readership was from a special interest group.

2) General scholars. Journal was of wide circulation. Readership was broad and from many disciplines.

3) Practitioners or policy makers. Readership included practitioners and policy makers. Implications were practice-based.

4) General public. Results were stated in terms general public could understand.

Data Source

Using the suggestions by Cook et al. (1992) and Cooper (1989), the literature search procedures were conducted in several steps that included: computerized database searching of ERIC, PsycLIT, and Medline; ancestry; invisible college; and hand searching of Review of Educational Research. The keywords: (meta-analytic" or "meta analytic" or "meta-analysis or "meta analysis" or "quantitative synthesis" or "Best Evidence Synthesis") and ("education" or "coaching" or "training" or "teaching" or "achievement") and "Language = English," identified 1197 citations. Once citations were identified, titles and abstracts were read to determine if retrieval was necessary. A total of 694 documents were retrieved.

Criteria for Inclusion of Meta-Analytic Studies

The criteria for inclusion of meta-analyses in the study were:

1. Published journal articles for the years 1984-1993; [Several authors recommend inclusion of unpublished studies in meta-analysis since unpublished studies are more likely to have nonsignificant results, and consequently, lower effect sizes (Cook et al., 1992; Glass, McGaw, & Smith, 1981; Rosenthal, 1991). However, Cooper, Dorr, & Bettencourt (1995) found published and unpublished meta-analyses differed by no more than 0.04 standard deviations in effect size.]

2. published research reports of meta-analyses when the corresponding meta-analysis was not included in the database;

3. meta-analyses with at least one outcome measure of achievement; and

4. at least one reported effect size or statistic which could be converted into an effect size.

Criteria for Exclusion of Meta-Analytic Studies

The criteria for exclusion of studies from the meta-synthesis were:

1. Outcomes with higher education programs in certain fields of study (e.g., medical, nursing, dental) since these represent areas in a specialized knowledge base;

2. outcomes with preschoolers because achievement measures are different at this level;

3. aptitude outcomes since these measure the ability to perform rather than achievement; and

4. interventions with high risk infants.

Four hundred twenty-seven meta-analyses were among the citations retrieved. One hundred seventeen meta-analyses were published prior to 1984 and thus did not meet criteria for inclusion in the study. One hundred ninety-one published meta-analyses did not have outcome measures related to achievement and were also not included in the study. The remaining 119 published meta-analyses were related to achievement and identified for possible inclusion in the study. Of these, 16 meta-analyses were excluded based on the exclusion criteria listed above (see Appendix B). Therefore, 103 published meta-analyses were included in the study (see Appendix A).

Results and Conclusions

The results are presented in Tables 1-6. Research outcomes were the focus in a majority of the meta-analyses while research methods and theory building or assessment were the focus in less than 10% of the meta-analyses (see Table 1). Generalization was a goal of all the meta-analysts while linguistic bridge building which deals with theories was a goal in 12% of the meta-analyses (see Table 2). The perspective of the meta-analysts was fairly evenly divided between neutral and espousal of a position (see Table 3). Exhaustive coverage with selective criteria was the norm for the majority of the meta-analyses (see Table 4). The findings in all of the meta-analyses were arranged conceptually. The findings were also arranged methodologically in slightly less than half of the meta-analyses (see Table 5). The intended audience was fairly evenly divided between

specialized and general scholars. In addition, practitioners were the intended audience in over 90% of the meta-analyses (see Table 6).

Implications

As suggested by Cooper (1988), using the taxonomy of reviews can benefit several audiences. First, and probably most important, the taxonomy can help readers of meta-analyses assess study quality. Secondly, the taxonomy can provide a framework for meta-analysts who are conducting and publishing meta-analyses. Third, a taxonomy can assist journal editors in assessing the merits of meta-analyses.

Table 1

Focus of the Meta-Analyses

Focus	n	Percent
Research outcomes	101	98.1
Research methods	10	9.7
Theories	10	9.7
Practices	78	75.7

Note. Meta-analyses may contain multiple foci.

Table 2

Goals of the Meta-Analysis

Goals	n	Percent
Generalization	103	100
Conflict resolution	43	41.7
Bridge building	13	12.6
Criticism	16	15.5
Identification issues	1	1.0

Note. Meta-analysis may contain multiple goals.

Table 3

Perspective of the Meta-Analyses

Perspective	n	Percent
Neutral	54	52.4
Espousal	49	47.6

Table 4

Coverage of the Meta-Analyses

Coverage	n	Percent
Exhaustive - comprehensive	0	0.0
Exhaustive - selective	87	84.5
Representative	4	3.9
Central	10	9.7

Note. Meta-analyses may contain more multiple types of coverage.

Table 5

Organization of the Meta-Analyses

Organization	n	Percent
Historically	0	0.0
Conceptually	103	100.0
Methodologically	50	48.5

Note. Meta-analyses may be organized in more than one way.

Table 6

Audience of the Meta-Analyses2

Audience	n	Percent
Specialized scholars	61	59.2
General scholars	59	57.3
Practitioners	94	91.3
Public	4	3.9

Note. Each meta-analysis can be coded into more than one category.

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APPENDIX A

Meta-Analyses Included in the Study

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APPENDIX B

Meta-Analyses Excluded from the Study

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